

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

GC566-2

SERIAL NO.

09/436,513

APPLICANT

Genericor International, Inc.

FILING DATE

November 9, 1999

GROUP ART UNIT

1652

REFERENCE DESIGNATION

U.S. PATENT DOCUMENTS

EXAM'R INITIAL		DOCUMENT NUMBER	DATE	NAME	Class	Subclass	Filing Date If Appropriate
CY	A1	5,403,737	04/04/95	Abrahmsen et al.	435	25267	
CY	A2	5,629,173	05/13/97	Abrahmsen et al.	435	681	
CY	A3	5,316,935	05/31/94	Arnold et al.	435	822	
CY	A4	5,208,158	05/04/93	Bech et al.	435	27961	
CY	A5	5,244,791	09/14/93	Estell	435	18861	
CY	A6	5,316,941	05/31/94	Estell et al.	435	25267	
CY	A7	5,955,340	02/21/99	Bott	435	92600	RECEIVED 00

FOREIGN PATENT DOCUMENTS

EXAM'R INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	Subclass	TRANSLAT'N
CY	B1	EP 3 328 229 A1	08/16/89	EP			
CY	B2	WO 00/28007	05/18/00	PCT			RECEIVED
CY	B3	WO 00/37658	06/29/00	PCT			MAR 17 2003
CY	B4	WO 91/16423	04/18/91	PCT			
CY	B5	WO 96/27671	02/27/96	PCT			
CY	B6	WO 97/37007	10/09/97	PCT			TECH CENTER 1600/2900
CY	B7	WO 99/20723	04/29/99	PCT			

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

CY	CY 6	Abrahmsen et al., "Engineering Subtilisin and Its Substrates for Efficient Ligation of Peptide Bonds in Aqueous Solution," <u>Biochemistry</u> , 30:4151-59 (1991)
	CY 7	Akabas et al., "Acetylcholine Receptor Channel Structure Probed in Cysteine-Substitution Mutants," <u>Science</u> , 258:307-310 (1992)
	CY 8	Alvear et al., "Inactivation of Chicken Liver Mevalonate 5-Diphosphate Decarboxylase by Sulphydryl-Directed Reagents: Evidence of a Functional Dithiol," <u>Biochimica et Biophysica Acta</u> , 994:7-11 (1989)
	CY 9	Barbas et al., "A Search for Peptide Ligase: Cosolvent-Mediated Conversion of Proteases to Esterases for Irreversible Synthesis of Peptides," <u>J. Am. Chem. Soc.</u> , 110:5162-66 (1988)
	CY 10	Barbas, et al., "Papain Catalysed Peptide Synthesis: Control of Amidase Activity and the Introduction of Unusual Amino Acids," <u>J. Chem. Soc., Chem. Commun.</u> , 533-34 (1987)
CY	CY 11	Bech et al., "Significance of Hydrophobic S ₄ -P ₄ Interactions in Subtilisin 309 from <i>Bacillus lentus</i> ," <u>Biochemistry</u> , 32:2847-2852 (1993)

EXAMINER

C. Nallan

DATE CONSIDERED

7/23/03

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEINFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Use several sheets if necessary)

(PTO-1449)

MAR 12 2003

PATENTS & TRADEMARK OFFICE
U.S. DEPARTMENT OF COMMERCE
TECH CENTER 1600
RECEIVED
MARCH 14 2003
TC 1700

ATTY. DOCKET NO.

GC566-2

SERIAL NO.

09/436,513

APPLICANT

Genencor International, Inc.

FILING DATE

November 9, 1999

GROUP ART UNIT

1652

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C11	C7/12 Berglund et al., "Kinetic Studies on the Peroxidase Activity of Selenosubtilisin," <u>Biochemistry</u> , 32:3754-3762 (1993)
C8	Berglund et al., "Altering the Specificity of Subtilisin <i>B. Lentus</i> by Combining Site-Directed Mutagenesis and Chemical Modification," <u>Bioorganic & Mechanical Chemistry Letters</u> , 6:2507-2512 (1996) 01/892
C11/7	Betzel et al., "Crystal Structure of the Alkaline Proteinase Savinase™ from <i>Bacillus lenthus</i> at 1.4 Å Resolution," <u>J. Mol. Biol.</u> , 223:427-445(1992)
C10/4	Bodwell et al., "Sulphydryl-Modifying Reagents Reversibly Inhibit Binding of Glucocorticoid-Receptor Complexes to DNA-Cellulos," <u>Biochemistry</u> , 23:1392-1398 (1984)
C11/5	Bonneau et al., "Alteration of the Specificity of Subtilisin BPN' by Site-Directed Mutagenesis in its S ₁ and S _{1'} Binding Sites," <u>J. Am. Chem. Soc.</u> , 113:1026-30 (1991)
C12/6	Brocklehurst, "Specific Covalent Modification of Thiols: Applications in the Study of Enzymes and Other Biomolecules," <u>Int. J. Biochem.</u> , 10:259-274 (1979)
C13/1	Bruice et al., "Novel Alkyl Alkanethiolsulfonate Sulphydryl Reagents. Modification of Derivatives of L-Cysteine," <u>Journal of Protein Chemistry</u> , 1:47-58 (1982)
C14/8	Buckwalter et al., "Improvement in the Solution Stability of Porcine Somatotropin by Chemical Modification of Cysteine Residues," <u>J. Agric. Food Chem.</u> , 40:356-362 (1992)
C15/9	Chen et al., "Incorporation of Unnatural Amino Acid Derivatives into a Peptide Bond via an Oxime Ester Catalysed By Papain or Lipase," <u>Chem. Commun.</u> , 165-66 (1996)
C16/0	Chen et al., "Kinetically Controlled Peptide Bond Formation in Anhydrous Alcohol Catalyzed by the Industrial Protease Alcalase," <u>J. Org. Chem.</u> , 57:6960-65 (1992)
C17/1	Chen et al., "Probing the S-1' Subsite Selectivity of an Industrial Alkaline Protease in Anhydrous t-Butanol," <u>Bioorganic & Medicinal Chemistry Letters</u> , 3(4):727-33 (1993)
C18/2	Daly et al., "Formation of Mixed Disulfide Adducts at Cysteine-281 of the Lactose Repressor Protein Affects Operator and Inducer Binding Parameters," <u>Biochemistry</u> , 25:5468-5474 (1986)
C19/2	Davies et al., "A Semisynthetic Metalloenzyme Based on a Protein Cavity That Catalyzes the Enantioslective Hydrolysis of Ester and Amide Substrates," <u>J. Am. Chem. Soc.</u> , 119:11643-11652 (1997)
C20/2	Davis, B.G., et al., "Altering the specificity of subtilisin <i>Bacillus lenthus</i> through the introduction of positive charge at single amino acid sites," <u>Bioorganic and Medicinal Chemistry</u> , (1999 Nov.) 7 (11) 2303-11, XPO000892841
C21/2	Davis, B.G., et al., "Controlled site selective protein glycosylation for precise glycan structure catalytic activity relationships," <u>Biorganic & Medicinal Chemistry</u> , Vol. 8, 2000, pp. 1527-1535
C22/2	Davis, B.G., et al., "Glycomethanethiosulfonates: powerful reagents for protein glycosylation," <u>Tetrahedron: Asymmetry</u> , NL, Elsevier Science Publishers, Amsterdam, Vol 11, No. 1, January 2000 (2000-01), pp. 245-262

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.
GC566-2SERIAL NO.
16002900
16,513

TECH CENTER 1600

APPLICANT
Genencor International, Inc.FILING DATE
November 9, 1999GROUP ART UNIT
1652RECEIVED
M A R 1 4 2 0 0 3
T C 1 6 0 0

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C23 77	Davis, B.G., et al., "Glycosyldisulfides: a new class of solution and solid phase glycosyl donors," <i>Chem. Commun.</i> , 2001, pp.189-190
C24 78	Davis, B.G., et al., "The controlled introduction of multiple negative charge at single amino acid sites in subtilisin bacillus lentinus," <i>Bioorganic and Medicinal Chemistry</i> , (1999 Nov.) 7 (11) 2293-301, XPO000892840
C25 79	Davis, Benjamin G, et al., "The Controlled Glycosylation of a Protein with a Bivalent Glycan: Towards a New Class of Glycoconjuates, Glycodendripoteins," <i>Chem. Commun.</i> , 2001, pp. 351-352
C26 70	De Santis et al., "Chemical Modifications at a Single Site Can Induce Significant Shifts in the pH Profiles of a Serine Protease," <i>J. Am Chem. Soc.</i> , 120:8582-8586 (1998)
C27 71	Desantis, G., et al, "Probing the altered specificity and catalytic properties of mutant subtilisin chemically modified at position S156C and S166C in the S1 pocket," <i>Bioorganic and Medicinal Chemistry</i> , (1997) 7/7 (1381-1387), XP0000892843
C28 72	Di Bello, "Total Synthesis of Proteins by Chemical Methods: The Horse Heart Cytochrome C Example," <i>Gazzetta Chimica Italiana</i> , 126:189-197 (1996)
C29 73	Dime, DS., "Protein Topology and Ion Channel Research," Toronto Research Chemicals, Inc. (catalog date unknown)
C30 74	Ekberg et al., "Enzymatic Coupling of Two D-Amino Acid Residues in Aqueous Media," <i>Tetrahedron Letters</i> , 30(5):583-86 (1989)
C31 75	Engler et al., "Critical Functional Requirement for the Guanidinium Group of the Arginine 41 Side Chain of Human Epidermal Growth Factor as Revealed by Mutagenic Inactivation and Chemical Reactivation," <i>The Journal of Biological Chemistry</i> , 267:2274-2281 (1992)
C32 76	Frillingos et al., "Cysteine-Scanning Mutagenesis of Helix II and Flanking Hydrophilic Domains in the Lactose Permease of <i>Escherichia coli</i> ," <i>Biochemistry</i> , 36:269-273 (1997)
C33 77	Gloss et al., "Examining the Structural and Chemical Flexibility of the Active Site Base, Lys-258, of <i>Escherichia coli</i> Aspartate Aminotransferase by Replacement with Unnatural Amino Acids," <i>Biochemistry</i> , 34:12323-12332 (1995)
C34 78	Graycar et al., "Altering the Proteolytic Activity of Subtilisin through Protein Engineering," <i>Annals New York Academy of Science</i> , 672:71-79 (1992)
C35 79	Gron et al., "A Highly Active and Oxidation-Resistant Subtilisin-Like Enzyme Produced by a Combination of Site-Directed Mutagenesis and Chemical Modification," <i>Eur. J. Biochem.</i> , 194:897-901 (1990)
C36 80	Gron et al., "Extensive Comparison of the Substrate Preferences of Two Subtilisins As Determined with Peptide Substrates Which Are Based on the Principle of Intramolecular Quenching," <i>Biochemistry</i> , 31(26):6011-18 (1992)
C37 81	Hempel et al., "Selective Chemical Modification of Human Liver Aldehyde Dehydrogenases E_1 and E_2 by Iodoacetamide," <i>The Journal of Biological Chemistry</i> , 256:10889-10896 (1981)
C38 82	Hilvert et al., "A Highly Active Thermophilic Semisynthetic Flavoenzyme," <i>J. Am. Chem. Soc.</i> , 110:682-689 (1988)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

RECEIVED

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.
GC566-2SERIAL NO.
09/436,513

MAR 14 2003

TECH CENTER 1600-2

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Use several sheets if necessary)

(PTO-1449)

MAR 12 2003

PATENTS & TRADEMARKS
SJCAPPLICANT
Genencor International, Inc.FILING DATE
November 9, 1999GROUP ART UNIT
1652RECEIVED
MAR 14 2003
TC 1600-2

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C3943	Hilvert et al., "New Semisynthetic Flavoenzyme Based on a Tetrameric Portein Template, Glyceraldehyde-3-Phosphate Dehydrogenase," <u>J. Am. Chem. Soc.</u> , 107:5805-5806 (1985)
C4044	House et al., " ¹ H NMR Spectroscopic Studies of Selenosubtilisin," <u>Biochemistry</u> , 32:3468-3473 (1993)
C4145	Huang et al., "Improving the Activity of Immobilized Subtilisin by Site-Specific Attachment to Surfaces," <u>Anal. Chem.</u> , 69:4601-4607 (1997)
C4246	Jonsson et al., "Temperature Effects on Protease Catalyzed Acyl Transfer Reactions in Organic Media," <u>Journal of Molecular Catalysis B: Enzymatic</u> , 2:43-51 (1996)
C4347	Kaiser, "Catalytic Activity of Enzymes Altered at Their Active Sites," <u>Agnew. Chem. Int. Ed. Engl.</u> , 27:913-922 (1988)
C4448	Kanaya et al., "Role of Cysteine Residues in Ribonuclease H from <i>Escherichia coli</i> ," <u>Biochem. J.</u> , 271:59-66 (1990)
C4549	Kato et al., "First Stereoselective Synthesis of D-Amino Acid N-Alkyl Amide Catalyzed by D-Aminopeptidase," <u>Tetrahedron</u> , 45(18) 5743-54 (1989)
C4650	Kawase et al., "Effect of Chemical Modification of Tyrosine Residues on Activities of Bacterial Lipase," <u>Journal of Fermentation and Bioengineering</u> , 72:317-319 (1991)
C4751	Kawashiro et al., "Effect of Ester Moiety of Substrates on Enantioselectivity of Protease Catalysis in Organic Media," <u>Biochemistry Letters</u> , 18(12):1381-86 (1996)
C4851	Kenyon et al., "Novel Sulphydryl Reagents," <u>Methods Enzymol.</u> , 47:407-430 (1977)
C4953	Kirley, "Reduction and Fluorescent Labeling of Cyst(e)ine-Containing Proteins for Subsequent Structural Analyses," <u>Analytical Biochemistry</u> , 180:231-236 (1989)
C5054	Kluger et al., "Amino Group Reactions of the Sulphydryl Reagent Methyl Methanesulfonothioate. Inactivation of D-3-hydroxybutyrate Dehydrogenase and Reaction with Amines in Water," <u>Can. J. Biochem.</u> , 58:629-632 (1980)
C5155	Kokubo et al., "Flavohemoglobin: A Semisynthetic Hydroxylase Acting in the Absence of Reductase," <u>J. Am. Chem. Soc.</u> , 109:606-607 (1987)
C5256	Konigsberg, "Reduction of Disulfide Bonds in Proteins with Dithiothreitol," <u>Methods in Enzymology</u> , 25:185-188 (1972)
C5357	Kuang et al., "Enantioselective Reductive Amination of α -Amino Acids by a Pyridoxamine Cofactor in A Protein Cavity," <u>J. Am. Chem. Soc.</u> , 118:10702-10706 (1996)
C5458	Lewis et al., "Determination of Interactive Thiol Ionizations in Bovine Serum Albumin, Glutathione, and Other Thiols by Potentiometric Difference Titration," <u>Biochemistry</u> , 19:6129-6137 (1980)
C5559	Liu et al., "Site-Directed Fluorescence Labeling of P-Glycoprotein on Cysteine Residues in the Nucleotide Binding Domains," <u>Biochemistry</u> , 35:11865-11873 (1996)
C5660	Lloyd, R.C. et al., "Site Selective Glycosylation of Subtilisin Bacillus Lentus Causes Dramatic Increase in Esterase Activity," <u>Biorganic & Medicinal Chemistry</u> , Vol. 8, 2000, pp. 1537-1544

EXAMINER:

C. Hallinan

DATE CONSIDERED

#13163

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

RECEIVED

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEINFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Use several sheets if necessary)

(PTO-1449)

ATTY. DOCKET NO.
GC566-2SERIAL NO. MAR 17 2003
09/436,514APPLICANT
Genencor International, Inc.FILING DATE
November 9, 1999GROUP ART UNIT
1652

RECEIVED
MAR 14 2003
TC 100

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C61	C5761	Margolin et al., "Incorporation of D-Amino Acids into Peptides via-Enzymatic Condensation in Organic Solvents," <u>J. Am. Chem. Soc.</u> , 109:7885-87 (1987)
C62	C5862	Margolin et al., "Peptide Synthesis Catalyzed by Lipases in Anhydrous Organic Solvents," <u>J. Am. Chem. Soc.</u> , 109:3802-04 (1987)
C63	C5963	Miller et al., "Peroxide Modification of Monoalkylated Glutathione Reductase," <u>The Journal of Biological Chemistry</u> , 266:19342-19360 (1991)
C64	C6064	Moree et al., "Exploitation of Subtilisin BPN as Catalyst for the Synthesis of Peptides Containing Noncoded Amino Acids, Peptide Mimetics and Peptides Conjugates," <u>J. Am. Chem. Soc.</u> , 119:3942-47 (1997)
C65	C6165	Morihara et al., " α -Chymotrypsin as the Catalyst for Peptide Synthesis," <u>Biochem. J.</u> , 163:531-42 (1977)
C66	C6266	Nakatsuka et al., "Peptide Segment Coupling Catalyzed by the Semisynthetic Enzyme Thiolsubtilisin," <u>J. Am. Chem. Soc.</u> , 109:3808-10 (1987)
C67	C6367	Nakayama et al., "Chemical Modification of Cysteinyl, Lysyl and Histidyl Residues of Mouse Liver 17 β -Hydroxysteroid Dehydrogenase," <u>Biochimica et Biophysica Acta</u> , 1120:144-150 (1992)
C68	C6468	Neet, K.E. and Koshland, D.E., "The Conversion of Serine at the Active Site of Subtilisin to Cysteine: A 'Chemical Mutation,'" <u>Proc. Nat. Acad. Sci. USA</u> , 56(5):1606-1611. (1966)
C69	C6569	Nishimura et al., "Reversible Modification of the Sulphydryl Groups of <i>Escherichia coli</i> Succinic Thiokinase with Methanethiolating Reagents, 5,5'-Dithio-bis(2-Nitrobenzoic Acid), p-Hydroxymercuribenzoate, and Ethylmercurithiosalicylate," <u>Archives of Biochemistry and Biophysics</u> , 170:461-467 (1975)
C70	C6670	O'Connor et al., "Probing an Acyl Enzyme of Selenosubtilisin by Raman Spectroscopy," <u>J. Am. Chem. Soc.</u> , 118:239-240 (1996)
C71	C6771	Pardo et al., "Cysteine 532 and Cystein 545 Are the N-Ethylmaleimide-Reactive Residues of the <i>Neurospora</i> Plasma Membrane H ⁺ -ATPase," <u>The Journal of Biological Chemistry</u> , 264:9373-9379 (1989)
C72	C6872	Peterson et al., "Nonessential Active Site Residues Modulate Selenosubtilisin's Kinetic Mechanism," <u>Biochemistry</u> , 34:6616-6620 (1995)
C73	C6973	Peterson et al., "Selenosubtilisin's Peroxidase Activity Does Not Require an Intact Oxyanion Hole," <u>Tetrahedron</u> , 53:12311-12317 (1997)
C74	C7074	Planas et al., "Reengineering the Catalytic Lysine of Aspartate Aminotransferase by Chemical Elaboration of a Genetically Introduced Cysteine," <u>Biochemistry</u> , 30:8268-8276 (1991)
C75	C7175	Plettner, E., et al., "Modulation of Esterase and Amidase Activity of Subtilisin Bacillus Lentus by Chemical Modification of Cysteine Mutants," <u>Journal of the American Chemical Society</u> , (2 Jun. 1999) 121/21, 4977-4981, XPO000891274.

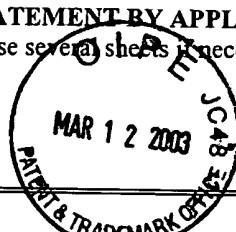
EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEINFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Use several sheets if necessary)

(PTO-1449)



ATTY. DOCKET NO.

GC566-2

SERIAL NO.

09/436,513

APPLICANT

Genencor International, Inc.

FILING DATE

November 9, 1999

GROUP ART UNIT

1652

RECEIVED
MAR 14 2003
TC 100

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C72 76	Plettner, Erika et al., "A Combination Approach to Chemical Modification of Subtilisin Bacillus Lentus," <u>Bioorganic & Medicinal Chemistry Letters</u> (Sept. 8, 1998) Vol. 8, No. 17, pp. 2291-2296, XP0004138220
C73 77	Polgar et al., "A New Enzyme Containing a Synthetically Formed Active Site. Thiol-Subtilisin," <u>Journal of American Chemical Society</u> , 88:3153-3154 (1966)
C74 79	Polgar, "Spectrophotometric Determination of Mercaptide Ion, an Activated Form of SH-Group in Thiol Enzymes," <u>FEBS Letters</u> , 38:187-190 (1974)
C75 79	Presenting Our Line of MTS Compounds," Toronto Research Chemicals Inc. (catalog, date unknown)
C76 80	Radziejewski et al., "Catalysis of N-Alkyl-1,4-Dihydronicotinamide Oxidation by a Flavopapain: Rapid Reaction in All Catalytic Steps," <u>J. Am. Chem. Soc.</u> , 107:3352-3354 (1985)
C77 81	Raia et al., "Activation of <i>Sulfolobus Solfataricus</i> Alcohol Dehydrogenase by Modification of Cysteine Residue 38 with Iodoacetic Acid," <u>Biochemistry</u> , 35:638-647 (1996)
C78 82	Ramachandran et al., "Stabilization of Barstar by Chemical Modification of the Buried Cysteines," <u>Biochemistry</u> , 35:8776-8785 (1996)
C79 83	Roberts et al., "Reactivity of Small Thiolate Anions and Cysteine-25 in Papain Toward Methyl Methanethiosulfonate," <u>Biochemistry</u> , 25:5595-5601 (1986)
C80 84	Rokita et al., "Synthesis and Characterization of a New Semisynthetic Enzyme, Flavolysozyme," <u>J. Am. Chem. Soc.</u> , 108:4984-4987 (1986)
C81 85	Sears et al., "Engineering Enzymes for Bioorganic Synthesis. Peptide Bond Formation," <u>Biotechnolo. Prog.</u> , 12:423-33 (1996)
C82 86	Sears et al., "Engineering Subtilisin for Peptide Coupling: Studies on the Effects of Counterions and Site-Specific Modifications on the Stability and Specificity of the Enzyme," <u>J. Am. Chem Soc.</u> , 116:6521-30 (1994)
C83 87	Siddiqui et al., "Arthrobacter D-Xylose Isomerase: Chemical Modification of Carboxy Groups and Protein Engineering Of pH Optimum," <u>Biochem. J.</u> , 295:685-691 (1993)
C84 88	Smith et al., "An Engineered Change in Substrate Specificity of Ribulosebisphosphate Carboxylase/Oxygenase," <u>The Journal of Biological Chemistry</u> , 265:1243-1245 (1990)
C85 89	Smith et al., "Chemical Modification of Active Site Residues in γ -Glutamyl Transpeptidase," <u>The Journal of Biological Chemistry</u> , 270:12476-12480 (1995)
C86 90	Smith et al., "Nonessentiality of the Active Sulfhydryl Group of Rabbit Muscle Creatine Kinase," <u>The Journal of Biological Chemistry</u> , 249:3317-3318 (1974)
C87 91	Smith et al., "Restoration of Activity to Catalytically Deficient Mutants of Ribulosebisphosphate Carboxylase/Oxygenase by Aminoethylation," <u>The Journal of Biological Chemistry</u> , 263:4921-4925 (1988)
C88 92	Smith et al., "Simple Alkanethiol Groups for Temporary Blocking of Sulfhydryl Groups of Enzymes," <u>Biochemistry</u> , 14:766-771 (1975)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEINFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Use several sheets if necessary)

(PTO-1449)



ATTY. DOCKET NO.

GC566-2

SERIAL NO.

09/436,513

RECEIVED
MAR 14 2003
TC 172

APPLICANT

Genencor International, Inc.

FILING DATE

November 9, 1999

GROUP ART UNIT

1652

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C89 <i>93</i>	Smith et al., "Subtle Alteration of the Active Site of Ribulose Bisphosphate Carboxylase/Oxygenase by Concerted Site-Directed Mutagenesis and Chemical Modification," <u>Biochemical and Biophysical Research Communications</u> , 152:579-584 (1988)
C90 <i>94</i>	So et al., "Lipase-Catalyzed Synthesis of Peptides Containing D-Amino Acid," <u>Enzyme Microb. Technol.</u> , 23:211-15 (1998)
C91 <i>95</i>	Soper et al., "Effects of Substrates on the Selective Modification of the Cysteinyl Residues of D-Aminio Acid Transaminase," <u>The Journal of Biological Chemistry</u> , 254:10901-10905 (1979)
C92 <i>96</i>	Spura, A., et al. "Probing Agonist Domain of the Nicotinic Acetylcholine Receptor by Cysteine Scanning Mutogenesis Reveals Residues in Proximity to the Alpha-Bungarotoxin Binding Site," <u>Biochemistry</u> , 20 Apr. 1999 Vol. 38:16 pp. 4912-4921
C93 <i>97</i>	Stauffer et al., "Electrostatic Potential of the Acetylcholine Binding sites in the Nicotinic Receptor Probed by Reactions of Binding-Site Cysteines with Charged Methanethiosulfonates," <u>Biochemistry</u> , 33:6840-6849 (1994)
C94 <i>98</i>	Stepanov, "Proteinases as Catalysts in Peptide Synthesis," <u>Pure & Appl. Chem.</u> , 68(6):1335-39 (1996)
C95 <i>99</i>	Stewart et al., "Catalytic Oxidation of Dithiols by a Semisynthetic Enzyme," <u>J. Am. Chem. Soc.</u> , 108:3480-3483 (1986)
C96 <i>100</i>	Suckling et al., "Carbon-Carbon Bond Formation Mediated by Papain Chemically Modified by Thiazolium Salts," <u>Bioorganic & Medicinal Chemistry Letters</u> , 3:531-534 (1993)
C97 <i>101</i>	Svensson et al., "Mapping the Folding Intermediate of Human Carbonic Anhydrase II. Probing Substructure by Chemical Reactivity and Spin and Fluorescence Labelling of Engineered Cysteine Residues," <u>Biochemistry</u> , 34:8606-8620 (1995)
C98 <i>102</i>	Valenzuela et al., "Kinetic Properties of Succinylated and Ethylenediamine-Amidated δ -Chymotrypsins," <u>Biochim. Biophys. Acta</u> , 250:538-548 (1971)
C99 <i>103</i>	Watanabe, et al., "A Unique Enzyme from <i>Saccharothrix</i> sp. Catalyzing D-Amino Acid Transfer," <u>Biochimica et Biophysica Acta</u> , 1337:40-46 (1997)
C100 <i>104</i>	West et al., "Enzyme-catalysed Synthesis of Peptides Containing D-Amino Acids, <u>J. Chem. Soc. Chem. Commun.</u> , pp 417-18 (1986)
C101 <i>105</i>	West et al., "Enzyme-Catalyzed Irreversible Formation of Peptides Containing D-Amino Acids," <u>J. Org. Chem.</u> , 51:2728-35 (1986)
C102 <i>106</i>	West et al., "Enzymes as Synthetic Catalysts: Mechanistic and Active-Site Considerations of Natural and Modified Chymotrypsin," <u>J. Am. Chem. Soc.</u> , 112:5313-5320 (1990)
C103 <i>107</i>	West et al., "Modification of Proteases to Esterases for Peptide Synthesis: Methylchymotrypsin," <u>J. Am. Chem. Soc.</u> , 110:3709-10 (1988)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

(PTO-1449)

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(Use several sheets if necessary)

MAR 12 2003
C-1700
PATENT & TRADEMARK OFFICE

ATTY. DOCKET NO.

GC566-2

SERIAL NO.

09/436,513

RECEIVED
MAY 14 2003
TO 1700

APPLICANT

Genencor International, Inc.

FILING DATE

November 9, 1999

GROUP ART UNIT
1652

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C104 <i>AN</i>	108	White et al., "Sequential Site-Directed Mutagenesis and Chemical Modification to Convert the Active Site Arginine 292 Of Aspartate Aminotransferase to Homoarginine," <u>Journal of the American Chemical Society</u> , 114:292-293 (1992)
C105 <i>109</i>	109	Wong et al., "Enzymes in Organic Synthesis: use of Subtilisin and a Highly Stable Mutant Derived from Ulitple Site-Specific Mutations," <u>J. Am. Chem. Soc.</u> , 112:945-53 (1990)
C106 <i>110</i>	110	Worku et al., "Identification of Histidyl and Cysteinyl Residues Essential for Catalysis of 5'-Nucleotidase," <u>FEBS Letter</u> , 167:235-240 (1984)
C107 <i>111</i>	111	Wu et al., "Conversion of a Protease into an Acyl Transferase: Selenolsubtilisin," <u>J. Am. Chem. Soc.</u> , 111:4514-4515 (1989) <i>4513-4514</i>
C108 <i>112</i>	112	Wynn et al., "Chemical Modification of Protein Thiols: Formation of Mixed Disulfides," <u>Methods in Enzymology</u> , 251:351-356 (1995)
C109 <i>113</i>	113	Wynn et al., "Comparison of Straight Chain and Cyclic Unnatural Amino Acids Embedded in the Core of Staphylococcal Nuclease," <u>Protein Science</u> , 6:1621-1626 (1997)
C110 <i>114</i>	114	Wynn et al., "Mobile Unnatural Amino Acid Side Chains in the Core of Staphylococcal Nuclease," <u>Protein Science</u> , 5:1026-1031 (1996)
C111 <i>115</i>	115	Wynn et al., "Unnatural Amino Acid Packing Mutants of <i>Escherichia Coli</i> Thioredoxin Produced by Combined Mutagenesis/Chemical Modification Techniques," <u>Protein Science</u> , 2:395-403 (1993)
C112 <i>116</i>	116	Xu et al., "Amino Acids Lining the Channel of the γ -Am inobutyric Acid Type A Receptor Identified by Cysteine Substitution," <u>The Journal of Biological Chemistry</u> , 268:21505-21508 (1993)
C113 <i>117</i>	117	Zhang et al., "Protease-catalyzed Small Peptide Synthesis in Organic Media, <u>Enzyme Microb. Technol.</u> , 19:538-44 (1996)

EXAMINER

G. Hallinan

DATE CONSIDERED

4/23/03

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).